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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A data I/O system comprising:

a plurality of storage devices; and

a controller which controls said storage devices, wherein said controller includes:

a read/write unit, responsive to the subsequent receipt of a read request and a write request, for reading data stored in said storage devices and writing data in said storage devices;

a logical volume management unit configured to map between a logical image of the data storage of a host processor (logical volume) and an actual space in said storage devices; ·

a volume management unit configured to manage an active primary production volume (P-VOL) and ~~second multiple mirror volumes (S-VOL)~~ a secondary mirror volume (S-VOL) group including multiple S-VOLs created as mirror images of said primary volume; and

an S-VOL restoring unit configured to restore the data of a first S-VOL belonging to the S-VOL group with the data of a second S-VOL belonging to the S-VOL group depending on the type of an error that happens in the first S-VOL.

2. (currently amended) A data I/O system according to claim 1,

wherein said controller further includes an access management unit configured to render at least one of said S-VOLs belonging to the S-VOL group read-only,

wherein said S-VOL restoring unit recovers an S-VOL belonging to the S-VOL group ~~where an error has happened~~ by copying data of the Read-only (RO) S-VOL to said S-VOL as an error happens in said S-VOL.

3. (currently amended) A data I/O system according to claim 1,

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wherein said controller includes an access management unit configured to render at least one of said S-VOLs belonging to the S-VOL group read-only,

wherein said S-VOL restoring unit recovers an S-VOL belonging to the S-VOL group ~~where a drive error has happened~~ by replacing the S-VOL with said [[RO]] Read-only (RO) S-VOL as an error happens in said S-VOL.

4. (currently amended) A data I/O system according to claim 1,

wherein said controller further includes:

an access management unit configured to render at least one of said S-VOLs belonging to the S-VOL group read-only; and

a monitoring unit configured to monitor frequencies of accesses to [[RO]] said Read-only (RO) S-VOLs,

wherein said S-VOL restoring unit restores the data of an S-VOL belonging to the S-VOL group ~~where an error has happened~~ by copying the data of [[an]] said RO S-VOL with the lowest access frequency as an error happens in said S-VOL.

5. (currently amended) A data I/O system according to claim 1,

wherein said controller further includes:

an access management unit configured to render at least one of said S-VOLs belonging to the S-VOL group read-only; and

a monitoring unit configured to monitor frequencies of accesses to the [[RO]] Read-only (RO) S-VOLs,

wherein said S-VOL restoring unit recovers an S-VOL belonging to the S-VOL group ~~where a hardware error has happened~~ by replacing the S-VOL with [[a]] said RO S-VOL with the lowest access frequency as an error happens in said S-VOL.

6. (currently amended) A data I/O system according to claim 1,

wherein said controller further includes:

an access management unit configured to render at least one of said S-VOLs belonging to the S-VOL group read-only and rendering at least one of said S-VOLs belonging to the S-VOL group read-and-writable; and

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an increments management unit configured to store updates that have occurred in a Read-and-Writable (RW) S-VOL since a P-VOL and the RW S-VOL were separated in an increments-volume,

wherein said S-VOL restoring unit recovers a RW S-VOL belonging to the S-VOL group where an error has happened by replacing the RW S-VOL with the [[RO]] Read-only (RO) RO S-VOL that has been updated by data of the increments-volume of the RW S-VOL as an error happens in the RW S-VOL.

7.   (currently amended) A data I/O system according to claim 1,

wherein said controller further includes:

an access management unit configured to render at least one of said S-VOLs belonging to the S-VOL group read-only and rendering at least one of said S-VOLs belonging to the S-VOL group read-and-writable;

a monitoring unit configured to monitor frequencies accesses to the [[RO]] Read-only (RO) S-VOLs; and

an increments management unit configured to store updates that have occurred in a [[RW]] Read-and-Writable (RW) S-VOL since a P-VOL and the RW S-VOL were separated in an increments-volume,

wherein said S-VOL restoring unit recovers a RW S-VOL belonging to the S-VOL group where an error has happened by replacing the RW S-VOL with the RO S-VOL with the lowest access frequency that has updated by data of the increments-volume of the RW S-VOL as an error happens in the RW S-VOL.

8.   (currently amended) A data I/O system according to claim 7,

wherein said controller further includes a spare SVOL management unit configured to manage a spare S-VOL created as a mirror image of a S-VOL belonging to the S-VOL group and to which read/write accesses are forbidden,

wherein said S-VOL restoring unit recovers [[an]] the S-VOL where an error has happened by using said spare S-VOL instead of said RO S-VOL.

9.   (original) A data I/O system according to claim 7 further comprising a plurality of the storage devices,

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wherein said S-VOL restoring unit replaces a storage device where a hardware error has happened and forms an S-VOL with another hardware device.

10.   (original) A data I/O system according to claim 8 further comprising a plurality of the storage devices,

wherein said S-VOL restoring unit replaces a storage device where a hardware error has happened and forms an S-VOL with another hardware device.

11.   (original) A data I/O system according to claim 1,

wherein said storage devices are disk drives,

wherein said controller further includes a communication adapter communicating with a data processing system issuing read and write requests.

12.   (currently amended) A method of controlling a data I/O system which includes:

a plurality of storage devices;

a read/write unit, responsive to the subsequent receipt of a read request and a write request, for reading data stored in said storage devices and writing data in said storage devices; and

a logical volume management unit configured to map between a logical image of the data storage of a host processor (logical volume) and an actual space in said storage devices;

said method comprising:

managing an active primary production volume (PVOL) and ~~second multiple mirror volumes (S-VOL)~~ a secondary mirror volume (S-VOL) group including multiple S-VOLs created as mirror images of said primary volume; and

restoring the data of a first S-VOL belonging to the S-VOL group with the data of a second S-VOL belonging to the S-VOL group depending on the type of an error that happens in the first S-VOL.

13.   (currently amended) A method according to claim 12, further comprising:

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rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-only,

recovering an S-VOL <u>belonging to the S-VOL group</u> ~~where an error has happened~~ by copying data of the Read-only (RO) S-VOL to said S-VOL <u>as an error happens in said S-VOL</u>.

14.   (previously presented) A method according to claim 12, further comprising:

rendering at least one of said S-VOLs read-only,

recovering an S-VOL where a drive error has happened by replacing the S-VOL with said RO S-VOL.

15.   (currently amended) A method according to claim [[1]] <u>12</u>, further comprising:

rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-only; and

monitoring frequencies of accesses to [[RO]] <u>said Read-only (RO)</u> S-VOLs,

restoring the data of an S-VOL <u>belonging to the S-VOL group</u> ~~where an error has happened~~ by copying the data of [[an]] <u>said RO</u> S-VOL with the lowest access frequency <u>as an error happens in said S-VOL</u>.

16.   (currently amended) A method according to claim [[1]] <u>12</u>, further comprising:

rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-only; and

monitoring frequencies of accesses to the RO S-VOLs,

recovering an S-VOL <u>belonging to the S-VOL group</u> ~~where a hardware error has happened~~ by replacing <u>the</u> S-VOL with a RO S-VOL with the lowest access frequency <u>as an error happens in said S-VOL</u>.

17.   (currently amended) A method according to claim [[1]] <u>12</u>, further comprising:

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rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-only and rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-and-writable; and

storing updates that have occurred in a Read-and-Writable (RW) S-VOL since a P-VOL and the RW S-VOL were separated in an increments-volume,

recovering a RW S-VOL <u>belonging to the S-VOL group</u> ~~where an error has happened~~ by replacing the SW S-VOL with the [[RO]] <u>Read-only (RO)</u> S-VOL that has been updated by data of the increments-volume of the RW S-VOL <u>as an error happens in the RW S-VOL</u>.

18.   (currently amended) A method according to claim [[1]] <u>12</u>, further comprising:

rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-only and rendering at least one of said S-VOLs <u>belonging to the S-VOL group</u> read-and-writable;

monitoring frequencies accesses to the [[RO]] <u>Read-only (RO)</u> S-VOLs; and

storing updates that have occurred in a RW S-VOL since a P-VOL and the RW S-VOL were separated in an increments-volume,

recovering a RW S-VOL <u>belonging to the S-VOL group</u> ~~where an error has happened~~ by replacing the RW S-VOL with the RO S-VOL with the lowest access frequency that has updated by data of the increments-volume of the RW S-VOL <u>as an error happens in the RW S-VOL</u>.

19.   (currently amended) A method according to claim 18, further comprising:

managing a spare S-VOL <u>created as a mirror image of a S-VOL belonging to the S-VOL group and</u> to which read/write accesses are forbidden,

recovering [[an]] <u>the</u> S-VOL where an error has happened by using said spare S-VOL instead of said RO S-VOL.

20.   (previously presented) A method according to claim 18, further comprising:

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replacing a storage device where a hardware error has happened and forms an

S-VOL with another hardware device.